AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-51. (Cancelled)

52. (New) A network, comprising:

M left side switches, M being a positive integer greater than 1;

N right side switches, N being a positive integer greater than 1;

a plurality of left end-node devices each coupled to at least one of the M left side switches; and

a first network that is operable as a three-stage network and that has a characteristic of a Clos network, the first network including the M left side switches and the N right side switches, the M left side switches functioning as both input and output stages, the N right side switches functioning as a center stage,

wherein each of the M left side switches are bi-directionally coupled to each of the N right side switches, and wherein each of the N right side switches are bi-directionally coupled to each other directly; and

the plurality of left end-nod devices communicates with each other exclusively across the first network.

53. (New) The network of Claim 52, further comprising

a plurality of right end-node devices each coupled to at least one of the N right side switches; and

a second network that is operable as a bi-delta network including the M left side switches and the N right side switches,

wherein the plurality of left end-node devices communicate with the plurality of right end-node devices across the second network.

54. (New) The network of Claim 52, further comprising

a plurality of right end-node devices each coupled to at least one of the N right side switches; and

a third network that is operable as a mesh network including the N right side switches,

wherein the plurality of right end-node devices communicate with each other across the third network.

55. (New) The network of Claim 54, further comprising

a second network that is operable as a bi-delta network including the M left side switches and the N right side switches,

wherein the plurality of left end-node devices communicate with the plurality of right end-node devices across the second network.

56. (New) The network of claim 55, wherein the first network and the second network and the third network are superimposed to operate among the M left side switches and the N right side switches.

57. (New) The network of claim 55, wherein the second network is operable as a constant bi-section bandwidth bi-delta network.

58. (New) The network of claim 55, wherein the third network is operable as a full mesh network.

59. (New) The network of claim 55, wherein communication through the plurality of left side switches and the plurality of right side switches occurs using one of 1P, Ethernet, ATM, SONET, Infiniband and RapidIO.

60. (New) The network of Claim 55, further comprising B inter-links connecting each pair of the N right side switches, B being a positive integer.

61. (New) The network of Claim 60, wherein B right end-node devices of the plurality of right end-node devices are coupled to each of the N right side switches.

62. (New) The network of Claim 61, wherein each inter-link of the B inter-links that are between each pair of the N right side switches is connected to a different right-end node device coupled to a first right side switch of the pair via an internal link;

63. (New) The network of Claim 60, wherein the third network has a characteristic of full non-blocking mesh network.

64. (New) The network of Claim 54, wherein the third network has a characteristic of a rearrangeably non-blocking mesh network.

65. (New) The network of Claim 54, wherein the third network has a characteristic of a rearrangeably non-blocking mesh network.

66. (New) The network of Claim 54, further comprising B inter-links connecting each pair of the N right side switches, B being a positive integer.

67. (New) The network of Claim 66, wherein B equals to 1.

68. (New) The network of Claim 66, wherein R right end-node devices of the plurality of right end-node devices are coupled to each of the N right side switches, R being an positive integer, and B*(N-1) equals to R.

69. (New) The network of Claim 68, wherein the third network has a characteristic of a constant bandwidth mesh network.

70. (New) The network of Claim 66, wherein R right-end node devices of the plurality of left end-node devices are coupled to each of the N right side switches, R being an positive integer, and 2*R is not greater that N*B.

71. (New) The network of Claim 70, wherein the third network has characteristics of a rearrangeably non-blocking mesh network.

72. (New) The network of claim 52, wherein the M left side switches are coupled to each other bi-directionally through at least one of the N side switches.

73. (New) The network of Claim 52, wherein the characteristic of a Clos network is rearrangeably non-blocking.

74. (New) The network of Claim 52, wherein L left-end node devices of the plurality of left end-node devices are coupled to each of the M left side switches, L being an positive integer not greater N

75. (New) The network of Claim 52, wherein the characteristic of a Clos network is strictly non-blocking.

76. (New) The network of Claim 52, wherein L left-end node devices of the plurality of left end-node devices are coupled to each of the M left side switches, L being an positive integer such that (2*L-1) is not greater than N.

77. (New) A network, comprising:

M left side switches, M being a positive integer greater than 2;

N right side switches, N being a positive integer greater than 2;

a plurality of left end-node devices each coupled to at least one of the M left side switches;

a plurality of right end-node devices each coupled to at least one of the N right side switches; and

M sub-networks that collectively have a characteristic of a Clos network and that each include

a first tier including a left side switch of the M left side switches;

a second tier including the N right side switches; and

a third tier including the M left side switches excluding the left side switch in the first tier,

wherein each of the M left side switches are bi-directionally coupled to each of the N right side switches, and wherein each of the N right side switches are bi-directionally coupled to each other directly; and

a left end-nod device coupled to the first tier of any one sub-network of the sub-networks communicates with a left end-nod device coupled to the third tier of the one sub-network across the one sub-network.

78. (New) The network of Claim 77, further comprising

a plurality of right end-node devices each coupled to at least one of the N right side switches; and

a second network that is operable as a bi-delta network including the M left side switches and the N right side switches,

wherein the plurality of left end-node devices communicate with the plurality of right end-node devices across the second network.

79. (New) The network of Claim 77, further comprising

a plurality of right end-node devices each coupled to at least one of the N right side switches; and

a third network that is operable as a mesh network including the N right side switches,

wherein the plurality of right end-node devices communicate with each other across the third network.

80. (New) The network of Claim 79, further comprising

a second network that is operable as a bi-delta network including the M left side switches and the N right side switches,

wherein the plurality of left end-node devices communicate with the plurality of right end-node devices across the second network.

81. (New) The network of claim 80, wherein the M sub-networks and the second network and the third network are superimposed to operate among the M left side switches and the N right side switches.

82. (New) The network of claim 80, wherein the second network is operable as a constant bi-section bandwidth bi-delta network.

83. (New) The network of claim 80, wherein the third network is operable as a full mesh network.

84. (New) The network of claim 80, wherein communication through the plurality of left side switches and the plurality of right side switches occurs using one of 1P, Ethernet, ATM, SONET, Infiniband and RapidIO.

85 (New) The network of Claim 80, further comprising B inter-links connecting each pair of the N right side switches, B being a positive integer.

86. (New) The network of Claim 85, wherein B right end-node devices of the plurality of right end-node devices are coupled to each of the N right side switches.

87. (New) The network of Claim 85, wherein each inter-link of the B inter-links that are between each pair of the N right side switches is connected to a different right-end node device coupled to a first right side switch of the pair via an internal link;

88. (New) The network of Claim 85, wherein the third network has a characteristic of full non-blocking mesh network.

89. (New) The network of Claim 79, wherein the third network has a characteristic of a rearrangeably non-blocking mesh network.

90. (New) The network of Claim 79, wherein the third network has a characteristic of a rearrangeably non-blocking mesh network.

91. (New) The network of Claim 79, further comprising B inter-links connecting each pair of the N right side switches, B being a positive integer.

92. (New) The network of Claim 91, wherein B equals to 1.

93. (New) The network of Claim 91, wherein R right end-node devices of the plurality of right end-node devices are coupled to each of the N right side switches, R being an positive integer, and B*(N-1) equals to R.

94. (New) The network of Claim 93, wherein the third network has a characteristic of a constant bandwidth mesh network.

95. (New) The network of Claim 91, wherein R right-end node devices of the plurality of left end-node devices are coupled to each of the N right side switches, R being an positive integer, and 2*R is not greater that N*B.

96. (New) The network of Claim 95, wherein the third network has characteristics of a rearrangeably non-blocking mesh network.

97. (New) The network of claim 77, wherein the M left side switches are coupled to each other bi-directionally through at least one of the N side switches.

98. (New) The network of Claim 77, wherein the characteristic of a Clos network is rearrangeably non-blocking.

99. (New) The network of Claim 77, wherein L left-end node devices of the plurality of left end-node devices are coupled to each of the M left side switches, L being an positive integer not greater N

100. (New) The network of Claim 77, wherein the characteristic of a Clos network is strictly non-blocking.

101. (New) The network of Claim 77, wherein L left-end node devices of the plurality of left end-node devices are coupled to each of the M left side switches, L being an positive integer such that (2*L-1) is not greater than N.

102. (New) A method comprising

communicating a plurality of left end-node devices coupled to M left side switches with each other across a first network that is operable as a three-stage network and that has a characteristic of a Clos network, the first network including the M left side switches and the N right side switches, the M left side switches functioning as both input and output stages, the N right side switches functioning as a center stage, each of M and N being a positive integer greater than 1,

wherein each of the M left side switches are bi-directionally coupled to each of the N right side switches, and wherein each of the N right side switches are bi-directionally coupled to each other directly.

103. (New) The method of Claim 102, further comprising communicating the plurality of left end-node devices with a plurality of right end-node devices across a second network that is operable as a bi-delta network including the M left side switches and the N right side switches.

104. (New) The method of Claim 102, further comprising communicating a plurality of right end-node devices with each other across a third network that is operable as a mesh network including the N right side switches.

105. (New) The method of Claim 104, further comprising communicating the plurality of left end-node devices with the plurality of right end-node devices across a

second network that is operable as a bi-delta network including the M left side switches and the N right side switches.

106. (New) The method of Claim 105, wherein the first network and the second network and the third network are superimposed to operate among a plurality of left side switches and a plurality of right side switches.

107. (New) The method of Claim 105, wherein the second network is operable as a constant bi-section bandwidth bi-delta network.

108. (New) The method of Claim 105, wherein the third network is operable as a full mesh network.

109. (New) The method of Claim 105, wherein communication through the plurality of left side switches and the plurality of right side switches occurs using one of 1P, Ethernet, ATM, SONET, Infiniband and RapidIO.

110. (New) The method of Claim 105, wherein B inter-links connect each pair of the N right side switches, B being a positive integer.

111. (New) The method of Claim 110, wherein B right end-node devices of the plurality of right end-node devices are coupled to each of the N right side switches.

112. (New) The method of Claim 111, wherein each inter-link of the B inter-links that are between each pair of the N right side switches is connected to a different right-end node device coupled to a first right side switch of the pair via an internal link;

113. (New) The method of Claim 110, wherein the third network has a characteristic of full non-blocking mesh network.

114. (New) The method of Claim 104, wherein the third network has a characteristic of a rearrangeably non-blocking mesh network.

115. (New) The method of Claim 104, wherein the third network has a characteristic of a rearrangeably non-blocking mesh network.

116. (New) The method of Claim 104, wherein B inter-links connect each pair of the N right side switches, B being a positive integer.

117. (New) The method of Claim 116, wherein B equals to 1.

118. (New) The method of Claim 116, wherein R right end-node devices of the plurality of right end-node devices are coupled to each of the N right side switches, R being an positive integer, and B*(N-1) equals to R.

119. (New) The method of Claim 118, wherein the third network has a characteristic of a constant bandwidth mesh network.

120. (New) The method of Claim 116, wherein R right-end node devices of the plurality of left end-node devices are coupled to each of the N right side switches, R being an positive integer, and 2*R is not greater that N*B.

121. (New) The method of Claim 120, wherein the third network has characteristics of a rearrangeably non-blocking mesh network.

122. (New) The method of Claim 102, wherein the M left side switches are coupled to each other bi-directionally through at least one of the N side switches.

123. (New) The method of Claim 102, wherein the characteristic of a Clos network is rearrangeably non-blocking.

124. (New) The method of Claim 102, wherein L left-end node devices of the plurality of left end-node devices are coupled to each of the M left side switches, L being an positive integer not greater N

125. (New) The method of Claim 102, wherein the characteristic of a Clos network is strictly non-blocking.

126. (New) The method of Claim 102, wherein L left-end node devices of the plurality of left end-node devices are coupled to each of the M left side switches, L being an positive integer such that (2*L-1) is not greater than N.